

cultural plants removes from the soil the most potash; and the Peruvian guano should prove such a powerful fertilizer, while of all manures it is the poorest in potash—containing not more than 2 per cent.

A good clover sod, plowed under immediately before planting, is considered the best preparation for potatoes, though since the introduction of guano potatoes are frequently planted after potatoes, corn, rye, &c. Plaster, about 12 bushels per acre, either sown broadcast or scattered on the hills just as plants are breaking the soil, is an effective fertilizer and is used to a considerable extent. Plaster on this sandy soil, has a highly beneficial effect on clover.

Potatoes of medium size, are usually planted whole, in hills about 2½ feet apart, 10 bushels of seed per acre. Plant as early in the spring as the soil will admit, and many farmers continue planting as late as the first week in June, but the crops are light. The Mercer, although a poor producer, is the favorite variety, now commanding the highest price. The *Long Johns* will yield one third more per acre, but they bring a less price and when the market is dull, it is difficult to sell them at all.

A few farmers still draw manure from the city, three miles, but since the introduction of guano the practice is becoming less common every year.

We met with a few good old farmers who had never tried guano, and had "no faith in it;" but all who had used it, without exception, thought it a "powerful" manure; yet we were somewhat surprised to find that no one could give even a good Yankee guess as to the number of bushels of potatoes over and above the unmanured soil 100 lbs. of guano could produce. M. D. D. T. More used 200 lbs. of Peruvian guano on potatoes side by side with "Northern Marl"—an article, we believe, which is said to contain a large quantity of phosphate of lime;—the marl did *no good*, while the guano "increased the crop fully one third." Mr. More's crop averaged 113 bushels per acre, so according to this, 200 lbs. of guano increased the crop 28 bush. per acre. The *safest* way to apply guano is to sow it broadcast and plow and harrow it in immediately; but it will produce a great effect if placed in the hill with the potato, but great care is necessary to incorporate it well with the soil, for it will assuredly kill the seed if it come in contact with it.

There is nothing remarkable about the method of cultivating potatoes in this district; the reason why farmers have engaged so extensively in their cultivation is to be ascribed to the almost total exemption from the rot, which is so injurious in richer and heavier soils.

PROPAGATION OF FISH.

Information of the highest importance on the artificial propagation of fish was laid before the late meeting of the British Association. Experiments with salmon, made at Perth, Scotland, have been extremely suc-

cessful. Three hundred boxes were laid down in twenty-five parallel rows, each box partly filled with clean gravel and pebbles. On the 23d of December, 1853, 300,000 ova were deposited in the boxes; in June they were admitted into the pond, their average size being about an inch and a half in length.—From the time of their admission to the pond the fry were fed daily with boiled liver, rubbed small by the hand. By the spring of the present year they had increased in size to the average of three and four inches in length. On the 2d of May a meeting of the committee was held at the pond, to consider the expediency of detaining the fry for another year or allowing them to depart, but it was thought they had not assumed the migratory dress till the 19th, when the sluice communicating with the river Tay was opened, and every facility for egress afforded. Contrary to expectation, none of the fry manifested any inclination to leave the pond until the 24th of May, when the larger and more mature of the smelts, after having held themselves detached from the others for several days went off in a body. A series of similar emigrations took place until full half the fry had left the pond, and descended the sluice to the Tay. It has long been a subject of controversy whether the fry of the salmon assume the migratory dress in the second or third year of their existence. So favorable an opportunity of deciding the question as that afforded by this experiment was not to be overlooked.

In order to test the matter in the fairest possible way, it was resolved to mark a portion of the smelts in such a manner that they might easily be detected when returning as grilse. A temporary tank, into which the fish must necessarily descend, was constructed at the junction of the sluice with the Tay; and as the shoals successively left the pond, about one in every hundred was marked by the adhesion of the second dorsal fin. A greater number were marked on the 29th of May than on any other day, in all about 1200 or 1300. The result has proved highly satisfactory and curious. Within two months of their liberation, twenty-two of the young fish so marked when in the state of smelts on their way to the sea, have been, on their returning migration up the river, recaptured and carefully examined; the conclusions arrived at are most gratifying, and proved what has heretofore appeared almost incredible the rapid growth of the young fish during their short sojourn in the salt water. Those taken first weighed 5 to 5½ lb., then increasing progressively to 7 and 8 lb., whilst the one captured on the 31st of July weighed no less than 9½ lb. In all these fish the wound caused by marking was covered with a skin, and in some a coating of scales had formed over the part.

The experiment has afforded satisfactory proof that a portion at least of the fry of the salmon assume the migratory dress and descend to the sea shortly after the close of the first year of their existence; and what is far more important in a practical point of

view, it has also demonstrated the practicability of rearing salmon of marketable value within twenty months of the deposition of the ova.

There can be no doubt that the quantity of salmon (as well as other fish), may be enormously increased by the artificial breeding process, and we regard the experiments as of great importance. At Cleveland, Ohio, success has attended the first experiments of Dr. Garlick and his coadjutor, who may do a vast deal for their fellow men by fully populating our western lakes. In the salmon region, east and west, the subject deserves attention and there is little doubt that in neighboring rivers where salmon is now unknown, they might by thus successfully introduced. How much more useful would it be if some of our sportsmen would take up the subject instead of devoting their hearts, bodies, and time to the poor enjoyment of shooting useful birds!—*Horticulturalist*.

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HIRED MEN, AND THEIR EMPLOYERS.

Some years ago the son of an English farmer came to the United States, and let himself as a farm laborer, in New York State, on the following conditions: commencing work at the 1st of September, he was to work ten hours a day for three years, and receive in payment a deed of a field containing twelve acres—securing himself by an agreement, by which his employer was put under bonds of \$2,000 to fulfill his part of the contract; also, during these three years he was to have the control of the field; to work it at his own expense, and to give his employer one-half the proceeds. The field lay under the south of a hill, was of dark heavy clay, resting on bluish colored solid clay sub-soil, and for many years previous had not been known to yield anything but a yellowish stunted vegetation.

The farmer thought the young man was a simpleton, and that he, himself, was most wise and fortunate; but the former nothing daunted by this opinion; which he was not unconscious, that the latter entertained of him, immediately hired a set of laborers, and set them to work in the field-trenching, as earnestly as it was possible for men to labor.

In the morning and evening, before and after having worked his ten hours, as per agreement, he worked with them, and continued to work in this way until, about the middle of the following November, he had finished the laying of nearly 5,000 yards good tile under-drains. He then had the field ploughed deep and thoroughly, and the earth thrown up as much as possible into ridges, and thus let it remain during winter. Next spring he had the field again ploughed as before, then cross-ploughed and thoroughly pulverized with a heavy harrow, then sowed it with oats and clover. The yield was excellent—nothing to be compared to it had ever been seen on the field. Next year it gave two crops of clover, of a rich dark green, and enormously heavy and luxuriant; and the year following, after being